

REMARKS/ARGUMENTS

In view of the foregoing amendments and the following remarks, the applicants respectfully submit that the pending claims are not anticipated under 35 U.S.C. § 102 and are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.

The applicants will now address each of the issues raised in the outstanding Office Action.

Objections

The title was objected to as not being descriptive. The title has been amended to be more clearly indicative of the claimed invention. Therefore, the applicants respectfully request that the Examiner reconsider and withdraw this objection.

The specification is objected to for failing to provide proper antecedent basis for the claimed subject matter in claims 4, 5, 7-9 and 16. Specifically, the Examiner requests that the applicants explain where the recitation "same color phase of color phase codings defined by the color filters", recited in claims 4, 5 and 16, and the recitation "different chrominance signals",

recited in claims 7-9, are located or explain their meaning. (See Paper No. 20070824, pages 2 and 3.) The applicants respectfully request that the Examiner reconsider and withdraw this objection in view of the following.

First, the noted recitations in claims 4, 5 and 16 are supported by the specification, which states:

In a color element having a "Bayer matrix", green (G) color filters are arranged in a checkered pattern on alternate pixels in the horizontal and vertical directions. Red (R) and blue (B) filters are line-sequentially alternately arranged at the remaining pixel positions of the respective rows in the horizontal direction. *[This supports that the "same color phase of color phase codings defined by the color filters", i.e., all the color phase codings produced by the green (G), red (R), and blue (B) filters.]* In such an element, the second driving mode (A) means that the output channels are selectively used for the respective colors. *[This supports that the same color phase is output in parallel from the same output channels.]* Hence, the post-processing can be easily executed. [Emphasis and remarks added.]

Page 24, lines 6-16.

Next, the noted recitation "different chrominance signals" in claims 7-9 is also supported by page 24, lines 6-16 of the specification. Specifically, this section of the specification discusses a color element have a "Bayer Matrix" in which red, green, and blue color filters are arranged. Each of these color filters produces pixel signals with different chrominance signals. In other words, the different color filters

produce pixel signals with different color phase codings (i.e., either red, green, or blue color phase codings).

Although the exact phrases "same color phase of color phase codings defined by the color filters" and "different chrominance signals" are not included in the specification, one having ordinary skill in the art would understand that the subject matter identified by these phrases are supported by the specification as discussed above. Thus, in light of the foregoing remarks and explanation as requested by the Examiner, the applicants respectfully request that the Examiner withdraw this objection.

Rejections under 35 U.S.C. § 102

Claims 1-13 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0167601 ("the Ohzu publication"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Ohzu publication does not anticipate independent claim 1 because the Ohzu publication does not teach a solid-state image sensing apparatus having a plurality of output channels in which a first driving mode and a second driving mode (in which pixel signals of pixels in the same image sensing area are read out) **can freely be set**, and control is executed to **change the number of output channels to be used** between the first driving mode and the second driving mode. In rejecting claim 1, the Examiner contends the Ohzu publication teaches the

ability to freely select between different driving modes which can change the number of output channels to be used as in the claimed invention. (See Paper No. 20070824, pages 3 and 4.) The applicants respectfully disagree.

The claimed invention concerns a solid-state image sensing apparatus and method which enables high-speed pixel reading by providing multiple output channels to output image data in parallel. In embodiments consistent with the claimed invention, one of a plurality of driving modes (in which pixels in a sensing area are read) can be freely set. Furthermore, the number of output channels used can be changed depending on the pixel read requirements of the driving mode set. This allows pixel read operations to be optimized for various situations such as moving image sensing, automatic exposure (AE) control, automatic white balance (AWB) control and automatic focusing (AF) control. In other words, in embodiments consistent with the present invention, the read operation may be optimized by changing the number of output channels to be used depending on the driving mode set by the type of camera operation being performed. (See, e.g., page 3, lines 3-21.)

By contrast, the Ohzu publication concerns an image sensor apparatus for removing undesirable fixed pattern noise from dark signals read out from photosensor cells. (See, e.g., the Abstract and paragraph [0044].) The Ohzu publication discloses various distinct embodiments which disclose different numbers of output channels. For example, the fourth embodiment of the Ohzu publication, cited by the Examiner and depicted in Figure 5, shows two output channels. In another separate and distinct embodiment cited by the Examiner (the sixth embodiment in

the Ohzu publication and depicted in Figure 9), four output channels are shown.

The Examiner contends, improperly, that the two aforementioned embodiments teach a first driving mode and a second driving mode which can freely be set, and that the number of output channels used can be changed. (See Paper No. 20070824, pages 3 and 4.) However, the fourth embodiment (Figure 5) and the sixth embodiment (Figure 9) in the Ohzu publication are different circuits corresponding to separate and distinct embodiments. These embodiments are not implemented together, and therefore cannot be freely set. Therefore, these two separate and distinct embodiments do not teach a first driving mode and a second driving mode which **can be freely set**.

Furthermore, the Ohzu publication does not teach that the number of output channels used in either of these embodiments can be changed (without modifying the physical circuitry).

Thus, independent claim 1 is not anticipated by the Ohzu publication for at least the foregoing reasons. Since claims 2 and 3 depend from claim 1, these claims are similarly not anticipated by the Ohzu publication.

The Ohzu publication does not anticipate independent claim 4, because the Ohzu publication does not teach a solid-state image sensing apparatus having a plurality of output channels such that pixel signals of pixels in the same color phase of color phase codings defined by the color filters are output in parallel from the same output channels while changing the number of output channels. In rejecting claim 4, the Examiner contends paragraphs

[0336] and [0341] of the Ohzu publication teach that pixel signals of pixels in the same color phase of color phase codings defined by the color filters are output in parallel from the same output channels while changing the number of output channels. (See Paper No. 20070824, pages 4 and 5.) The applicants respectfully disagree.

As stated by the Examiner, the cited paragraphs in the Ohzu publication disclose:

R and G filters in an order of R, G, R, G,... are formed on photoelectric transducer elements of the even-numbered rows, and G and B filters in order of G, B, G, B,... are arranged in odd-numbered rows and also R- and G-dot sequential signal OUT1 and G- and B-dot sequential signal OUT2.

Paper No. 20070824, page 5. However, this does not teach that pixel signals of pixels in the same color phase of color phase codings defined by the color filters are output in parallel from the same output channels while changing the number of output channels.

As discussed above, the phrase "same color phase of color phase codings defined by the color filters" should be interpreted to mean all the color phase produced by a specific filter (i.e., either the color phase codings produced by the green (G) filter, or the blue (B) filter, or the red (R) filter). Therefore, embodiments consistent with claim 4 provide, for example, that all the color phase codings produced by the Red (R) filter are output in parallel from the same output channel. (See, page 24, lines 6-16.) In other words, each output channel used would output the same color phase. This is

clearly different than the alternating color phase patterns (i.e., R- and G-dot sequential signal OUT1 and G- and B-dot sequential signal OUT2) disclosed in the Ohzu publication.

Furthermore, as discussed above with respect to claim 1, the Ohzu publication does not teach that the number of output channels used in any of the embodiments disclosed can be changed (without modifying the physical circuitry).

Thus, independent claim 4 is not anticipated by the Ohzu publication for at least the foregoing reasons. Since claims 7 and 10 depend from claim 4, these claims are similarly not anticipated by the Ohzu publication.

The Ohzu publication does not anticipate independent claims 5 and 6, because the Ohzu publication does not teach that the number of output channels to be used can be changed. As discussed above with respect to claim 1, the Ohzu publication does not teach that the number of output channels used in any of the embodiments disclosed can be changed (without modifying the physical circuitry).

Thus, independent claims 5 and 6 are not anticipated by the Ohzu publication for at least the foregoing reasons. Since claims 8 and 11 depend from claim 5, and claims 9 and 12 depend from claim 6, these claims are similarly not anticipated by the Ohzu publication.

The Ohzu publication does not anticipate independent claim 13, as amended, because the Ohzu publication does not teach the act **changing the number of output channels to be used in accordance with an externally input control**

signal. As discussed above with respect to claim 1, the Ohzu publication does not teach that the number of output channels used in any of the embodiments disclosed can be changed (without modifying the physical circuitry).

Thus, independent claim 13, as amended, is not anticipated by the Ohzu publication for at least this reason.

Rejections under 35 U.S.C. § 103

Claims 14-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ohzu publication in view of U.S. Patent No. 6,952,228 ("the Yoneda patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Independent claim 14 is not rendered obvious by the Ohzu publication and the Yoneda patent because these references do not teach, either alone or in combination, a solid-state image sensing apparatus having a first driving mode and a second driving mode (in which pixel signals of pixels in the same image sensing area are read out) **can freely be set**, and control is executed to **change the number of output channels to be used** between the first driving mode and the second driving mode. In rejecting claim 14, the Examiner contends the Ohzu publication teaches the ability to freely select between different driving modes which can change the number of output channels to be used. (See Paper No. 20070824, page 8.) However, as discussed above with respect to claim 1, the Ohzu publication does not provide such a

teaching. Furthermore, as discussed above with reference to claim 1, the Ohzu publication does not teach that the number of output channels used in either of these embodiments can be changed (without modifying the physical circuitry). The purported teachings of the Yoneda patent do not compensate for the deficiencies of the Ohzu publication with respect to claim 14.

Thus, independent claim 14 is not rendered obvious by the Ohzu publication and the Yoneda patent for at least the foregoing reasons. Since claim 15 depends from claim 14, it is similarly not rendered obvious by the cited references.

Independent claim 16 is not rendered obvious by the Ohzu publication, and the Yoneda patent, because the cited references do not teach, either alone or in combination, a solid-state image sensing apparatus having a plurality of output channels such that pixel signals of pixels in the same color phase of color phase codings defined by the color filters are output in parallel from the same output channels while changing the number of output channels. As discussed above with respect to claim 4, the phrase "same color phase of color phase codings defined by the color filters" should be interpreted to mean all the color phase produced by a specific filter (i.e., either the color phase codings produced by the green (G) filter, or the blue (B) filter, or the red (R) filter). Therefore, embodiments consistent with claim 4 (and claim 16) provide, for example, that all the color phase codings produced by the Red (R) filter are output in parallel from the same output channel. (See, page 24, lines 6-16.) In other

words, each output channel used would contain the same color phase. This is clearly different than the alternating color phase patterns (i.e., R- and G-dot sequential signal OUT1 and G- and B-dot sequential signal OUT2) disclosed in the Ohzu publication. The purported teachings of the Yoneda patent do not compensate for the deficiencies of the Ohzu publication with respect to claim 16.

Thus, independent claim 16 is not rendered obvious by the Ohzu publication and the Yoneda patent for at least the foregoing reasons. Since claim 17 depends from claim 16, it is similarly not rendered obvious by the cited references.

New claim

New independent claim 18 is supported by Figures 7-10 and page 17, line 10 through page 29, line 2.

Conclusion

In view of the foregoing amendments and remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

Any arguments made in this amendment pertain **only** to the specific aspects of the invention **claimed**. Any claim amendments or cancellations, and any arguments, are made **without prejudice to, or disclaimer of**, the applicants' right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by


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Respectfully submitted,

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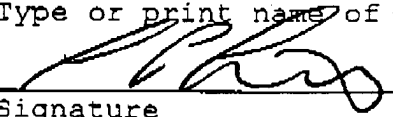

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